

# Initial Water Demand Estimates For Three 2030 Scenarios

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1

## 1<sup>st</sup> Cut at Quantifying Narrative Scenarios

### ◆ Steps

- Build model
- Identify parameter values unique to scenarios
- Compute results

2

## No single method for choosing numerical values for parameters

- ◆ There is no “correct” scenario
- ◆ Other modeling studies can inform quantification
  - Ex: DOF demographic projects – good choice for Current Trends
- ◆ Important to quantify drivers independently of scenario results (water demand)
- ◆ Check intermediate results for plausibility

3

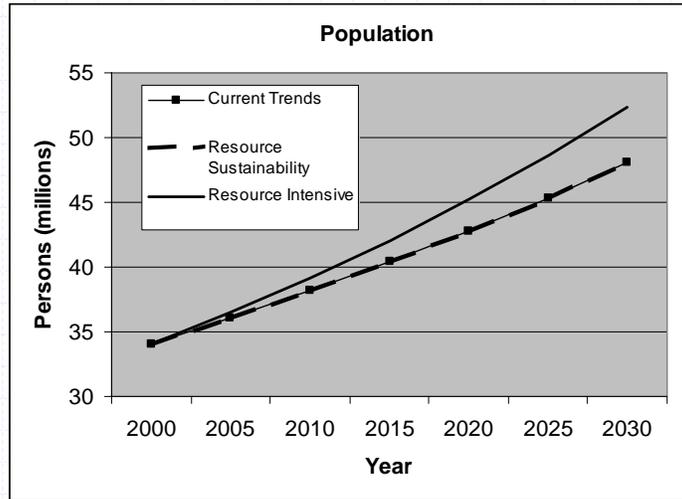
## Demand Driver Results

- ◆ Please consult “Quantified Narrative Scenarios” hand-out
- ◆ New rows...

4

# Total Population

Current Trends: DOF  
 Resource Sustain: DOF  
 Resource Intensive: Old DOF

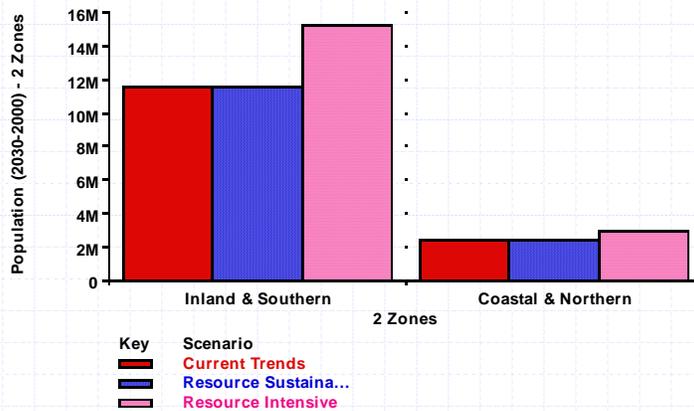


5

# Population Distribution

Current Trends: DOF  
 Resource Sustain: DOF  
 Resource Intensive: DOF + 25% / 16%

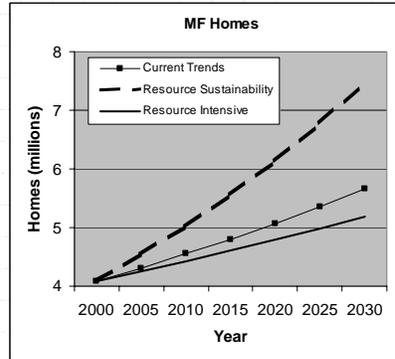
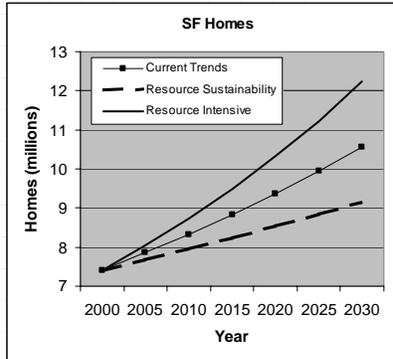
Population Change 2030-2000



6

# Housing (Population Density)

Current Trends: 36% MF housing (2000)  
 Resource Sustain: 46% MF (+10%)  
 Resource Intensive: 31% MF (-5%)

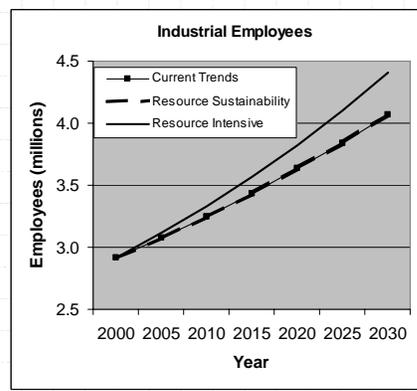
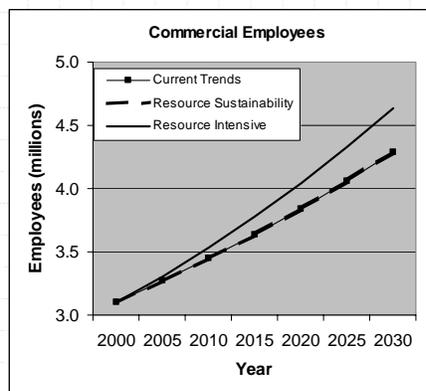


7

# Employees

Current Trends: Driven by population\*  
 Resource Sustain: Driven by population\*  
 Resource Intensive: Driven by population\*

\*Replace with 2030 DOF projections when data available



8

## Changes in Water Use Coefficients

- ◆ Changes in WUC captures
  - Response to prices, income, natural conservation and efficiency
- ◆ Current Trends
  - 10% decrease in WUC from 2000-2030
- ◆ Resource Sustainability
  - 20% decrease in WUC from 2000-2030
- ◆ Resource Intensive
  - 5% decrease in WUC from 2000-2030

9

## Summary of Urban Drivers

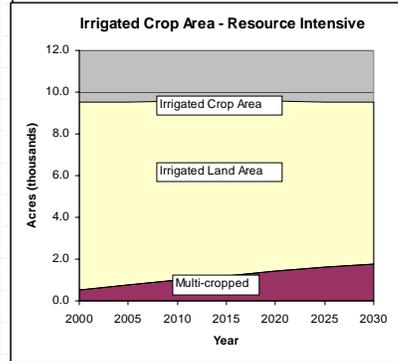
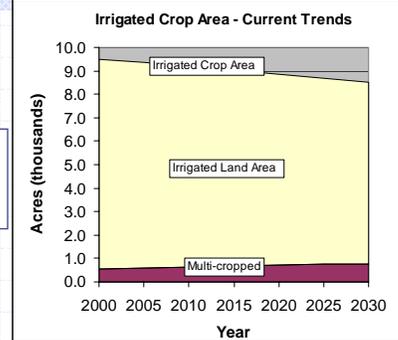
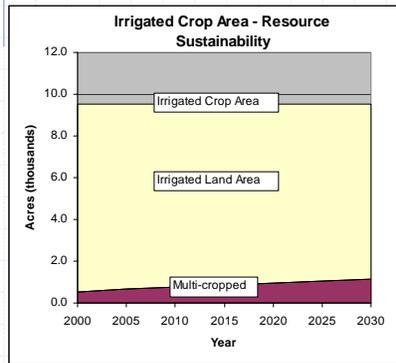
**Urban Water Demand Factors for 2000 and 2030.**

Model Result	Year	Year 2030		
	2000	Current Trends	Resource Sustain.	Resource Intensive
Population (millions)	34.1	48.1	48.1	52.3
Inland/Southern Pop. (mil)	25.8	37.3	37.3	41.1
Coastal/Northern Pop. (mil)	8.3	10.8	10.8	11.2
SF Homes (millions)	7.4	10.6	9.2	12.2
MF Homes (millions)	4.1	5.7	7.5	5.2
Commercial Employees (mil)	3.1	4.3	4.3	4.6
Industrial Employees (mil)	2.9	4.1	4.1	4.4

10

# Irrigated Area

**Current Trends:** ICA – Current Trends, MA/ILA – 6%->10%  
**Resource Sustain:** ICA – Constant, MA/ILA – 6%->14%  
**Resource Intensive:** ICA – Constant, MA/ILA – 6%->23%



# Irrigation Applied Water

- ◆ Reflects all factors affecting water use per crop type
- ◆ Also reflects changes in cropping patterns
  - Can disaggregate in future
- ◆ Current Trends
  - 5% decrease in AW from 2000-2030
- ◆ Resource Sustainability
  - 10% decrease in AW from 2000-2030
- ◆ Resource Intensive
  - Constant AW

## Summary of Irrigation Demand Factors

Factor	Year 2000	Year 2030		
		Current Trends	Resource Sustainability	Resource Intensive
Irrigated Crop Area (1000 Acres)	9,510	8,520	9,520	9,520
Irrigated Land Area	8,980	7,740	8,360	7,740
Multi-cropped Area	540	780	1,160	1,780
Effective Applied Water (AF/Acre)	3.23	3.045	2.875	3.16

13

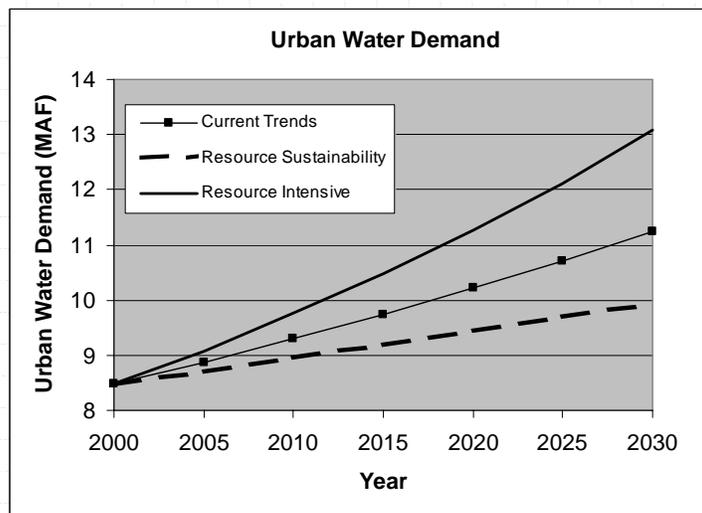
## Environmental Water Demand

- ◆ Unmet needs based upon memo from Environmental Defense (Dec. 8, 2003)
- ◆ Current Trends
  - 100% Unmet Needs by 2030
- ◆ Resource Sustainability
  - 150% Unmet Needs by 2030
- ◆ Resource Intensive
  - 100% Unmet Needs by 2030

14

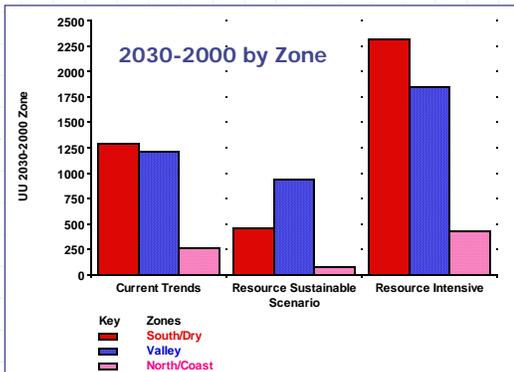
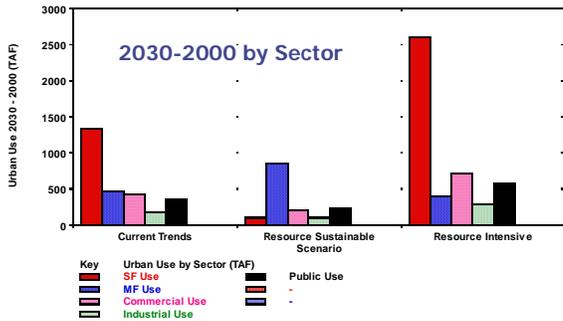
# Results

# Urban Water Demand

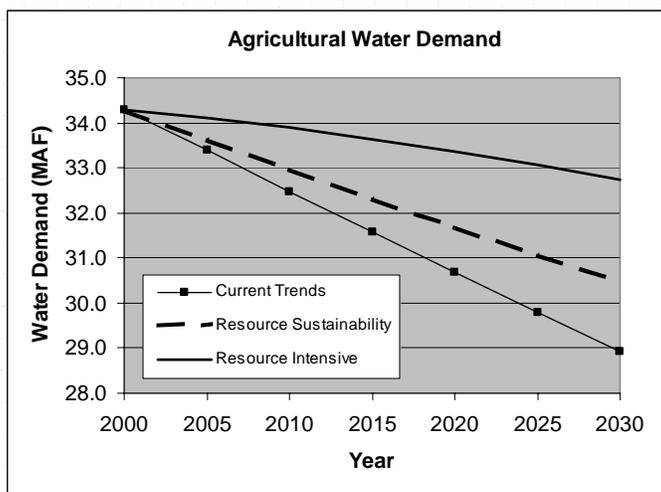


# Urban Demand Change – by sector and zone

South/dry = SC, CR, SL  
 Valley = SR, SJ, TL  
 North/coast = NC, SF, CC, NL

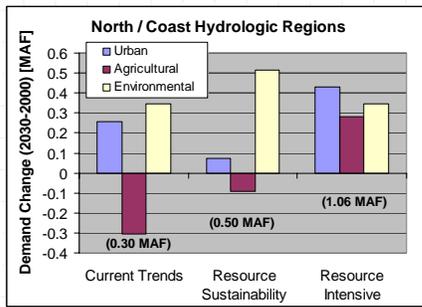
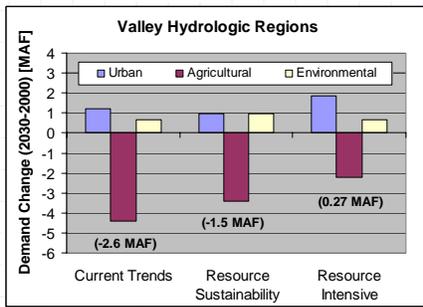
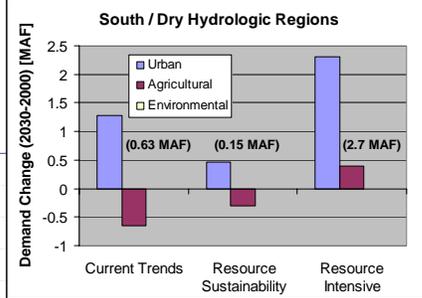


# Results – Agricultural Demand



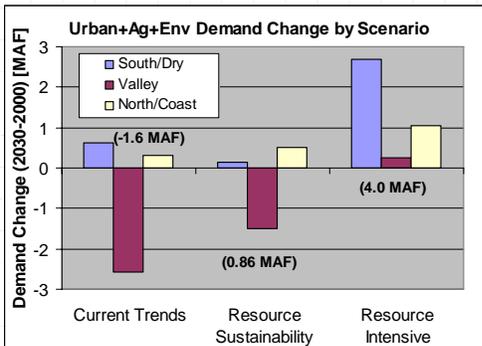
# Urban, Ag, Envir. Demand By Region

South/dry = SC, CR, SL  
 Valley = SR, SJ, TL  
 North/coast = NC, SF, CC, NL



# Total Demand

Water Demands	Changes in Water Demand from 2000 to 2030		
	Scenario 1 Current Trends	Scenario 2 Resource sustainability	Scenario 3 Resource intensive
Urban	2.8	1.5	4.6
Agricultural	-5.4	-3.8	-1.6
Environmental Objectives	1	1.5	1
Stop groundwater overdraft	1 - 2	1 - 2	2 - 4
<b>Total</b>	<b>-0.6 - 0.4</b>	<b>0.2 - 1.2</b>	<b>6.0 - 8.0</b>



South/dry = SC, CR, SL  
 Valley = SR, SJ, TL  
 North/coast = NC, SF, CC, NL